U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

Thermochemical Biomass Conversion Laboratory B-Roll

Scene-by-Scene Description

Get the facts behind the footage available on the U.S. Department of Energy's (DOE) Office of Energy Efficiency and Renewable Energy (EERE) B-Roll website at **eere.energy.gov/news/b_roll.cfm**.

Video Title: Thermochemical Biomass Conversion Laboratory
Video Only/No Audio
Location: National Renewable Energy Laboratory, Golden, Colorado
Shoot Date: May 18, 2011
Total Running Time: 8:34

Scene 1: 00:05: Fluidized bed biomass reactor at the National Renewable Energy Laboratory (NREL) Thermochemical Users Facility (TCUF).

Scene 2: 01:10: Thermochemical Process Development Unit (TCPDU) control room. The 0.5-metric-ton-per-day TCPDU can be operated in either a pyrolysis or gasification mode. The main unit operations in the TCPDU include: 8-inch diameter fluidized bed reactor; 1.5-inch diameter by 100-ft-long tubular entrained flow reactor; cyclonic particulate separation; fluidized bed catalytic reformer; and wet scrubber system.

Scene 3: 01:52: Biomass conversion product analysis.

Scene 4: 02:48: Fluidized bed cold flow model.

Scene 5: 03:22: Overview of NREL's Fuel Synthesis Catalyst Laboratory, which provides a wide range of capabilities in high-pressure heterogeneous catalyst testing. Shown is a reactor being changed out for biofuels synthesis testing.

Scene 6: 04:07: Fuel Synthesis Catalyst Laboratory control room.

Scene 7: 04:47: Synthesis gas compressor. Synthesis gas formed during the gasification process must be compressed before it enters the catalytic fuel synthesis reactor.

Scene 8: 05:32: Various biomass feedstock used for biofuels, including corn fiber, peanut shells, and distillers dry grains.

Scene 9: 06:04: Pilot-scale synthesis gas compressor.

Scene 10: 06:33: Pilot-scale fuel synthesis laboratory.

Scene 11: 07:02: On-line biofuels product analysis; two-dimensional gas chromatograph looking at liquid products.

Scene 12: 08:02: Catalyst testing; second microactivity test system (MATS2).

Learn More about Thermochemical Biomass Conversion

Thermochemical conversion technologies convert biomass and its residues to fuels and chemicals. Thermochemical conversion is effectively applied to any biomass feedstock and will enhance fuel yields in integrated biorefineries by combining conversion types with heat and power efficiencies to produce fuel and products.

The EERE Biomass Program conducts research on thermochemical conversion through its Thermochemical Platform. The platform aligns its research and development with the Program's goals, which include using stand-alone thermochemical conversion and integrating efficient, complementary thermochemical conversion technology into a model biorefinery. More information about thermochemical conversion and other biomass technologies can be found at the EERE Biomass Program website at **eere.energy.gov/biomass/**.

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